

THE NAVAL SAFETY CENTER'S AVIATION MAGAZINE

approach

November 2003

WHO'S THE FLAMER?

Cross-Cockpit IMC Quick-Stop

Fire! Fire!
Mayday! Mayday!
We're Going Down!



approach

The Naval Safety Center's Aviation Magazine

November 2003 Volume 48 No. 11

On the cover

An HH-60J Jayhawk from Coast Guard Air Station, Sitka, Alaska, visits the Cape Decision lighthouse on Kuiu Island. Photo by Lt. Russ Hellstern, USCG.

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Mission Statement

Mishaps waste our time and resources. They take our Sailors, Marines and civilian employees away from their units and workplaces and put them in hospitals, wheelchairs and coffins. Mishaps ruin equipment and weapons. They diminish our readiness.

This magazine's goal is to help make sure that personnel can devote their time and energy to the mission, and that any losses are due to enemy action, not to our own errors, shortcuts or failure to manage risk.

We believe there is only one way to do any task: the way that follows the rules and takes precautions against hazards. Combat is hazardous enough; the time to learn to do a job right is before combat starts.

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Thanks for helping with this issue...

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Me and My Thunderpig

By Lt. Jake Staub

Ah, the mighty Prowler. Certainly not the sexiest jet in the fleet, but, as with anything else, it has its perks. No other aircraft is as ugly, as loud, or as much of a trial-and-tribulation to operate behind the boat. "Character" is what I prefer to call it; the Prowler has character in spades, especially when you're a nugget pilot, in an air wing operating in the tropical environment off Guam, in a plane that isn't automatic.



The mission was a perfect start to another day on a WestPac cruise. It didn't take long to become a wringing-wet mess during man-up, start and taxi. Fortunately, none of us had any idea of the events that would transpire once airborne. Our minds were occupied solely by a desire to climb into the clean, cool sky and escape the oppressive heat.

Off the cat, we went in search of our little piece of heaven in the overhead-tanker stack. Our first order of business was a package check. Then we climbed to 24,000 feet to join a division of Hornets petrified of the "matter attracting matter" principle, especially when one aircraft was unaided by air-to-air radar.

While at military-rated thrust (MRT), I noticed the left engine was running 90 degrees cooler than the right engine—definitely odd but no cause for alarm. I'd seen 50-degree splits that didn't raise eyebrows with the maintainers. After pulling the throttles off the stops, the temperatures matched up. How about that join on the division? Nothing like the bone-chilling handicap of losing sight in close, while shooting an approach through the trelliswork of a Grumman Ironworks canopy.

Good thing we joined up, because I was ready to give an electron-induced, lead-pipe beating to a division of Eagles from Guam. We had visions of Prowler gun kills dancing

Me and My Thunderpig

through our heads, and all looked well, except the weather. Clouds wreaked havoc on the idea of a high war, so it was down to 14,000 feet to work a low war. The Eagles quickly gave up on that idea, and we detached with a Marine-Hornet section, lamenting the missed opportunity to bat about the Air Force bunny.

The game was on. Moments after detaching, I heard something I hadn't heard since the day I blew up the motor in my '67 Chevy on a high-speed run from school. I just had shifted into fifth in the low triple digits. Our trusty Pratt and Whitney J-52 motor was having all kinds of trouble with the "suck, squeeze, bang and blow" theory after its big thump. We weren't sure what had happened, but we agreed the airframe had plenty of vibrations. We were reasonably sure the origin of the noise was the left engine, so, despite engine gauges that displayed normal readings, I pulled back the engine to idle. Sure enough, the vibes calmed down and no longer were noticeable to the guys in the back (one of whom was the CO). The engine gauges read normal. However, I, the 150-hour nugget, still felt significant vibrations in the throttle quadrant and floorboards. Meanwhile, lead gave us an in-flight inspection to assess external damage. Fortunately, there was none.

Like a "wood duck on a June bug," we made our way back to mom. Along the way, we plugged our nearest divert into the system. The divert happened to be in the same direction as the ship. I began to sell my idea of shutting down the left engine, while the CO started to coordinate with our rep on the ship. Having seen what engine vibrations look like at the bottom of an oil pan, I had a hunch our once finely balanced turbine had serious problems. Also in the back of my mind was the knowledge that J-52s have a recent history of

shedding turbine wheels in an effort to snuff out the remaining motor.

After voicing my reservations about keeping the engine running, I still felt vibrations in the airframe from the engine. Everyone agreed I should shut down the ill engine. Immediately after securing the engine, the entire crew noticed the plane felt much smoother. The left engine normally wound down and windmilled, while continuing to power the left side hydraulics. Now, if the right engine, a recently installed unknown quantity, kept running, we'd be OK—so I thought.

We arrived overhead the ship with fuel to burn and with the CO talking to the ship—leaving no doubt we wanted to land as soon as possible. I couldn't blame the man. Flying in the back, on a single questionable engine, with a nugget up front at the controls, and while dodging WestPac-afternoon buildups was a formidable position to be in less than a week before his change of command.

Our situation seemed increasingly ominous as the ship started an emergency pull forward. While I meandered in a starboard delta to avoid large rain clouds, we decided on a fuel weight of 5.0—that sounded fine to me. The EP says, "Burn down or dump to a minimum," which left us 1.8 over a bingo to Saipan, about 50 miles away.

Tower cleared us to Charlie on a straight-in whenever we were ready, and on came the dumps. I built a mental picture of how I would set up for the approach from where we were; my vision immediately was negated by the ship turning. It was raining hard, and the CO voiced his displeasure of driving single-engine into the rain. We started dumping down to 5.0, but, somehow, the magic number changed to 6.0. The TACAN didn't provide useful information, and bull's-eye wasn't working. But we did have

the ram-air turbine out—fantabulous.

Somewhere around eight miles, we flew out of the rain shower, and I configured the airplane for landing, sans speed brakes. I began to investigate the flight characteristics in a dirty configuration. Paddles suggested we evaluate the rate of climb with a single engine at MRT to determine rudder input. We were bearing down on the ship, and all I knew was that centerline was somewhere out there. I investigated how the airplane flew at various power settings and began trimming the rudder. I decided to trim half the pressure and to manually input the other half. I was concerned too much trim might make us

blazing 500 feet per minute.

The second pass went much better. Centerline still was difficult to find, but at least I knew what to expect, and I worked us closer, using constant angle-of-bank turns. Starting at 600 feet (800 feet would have taken too long to reach and didn't work well the first time anyway) moved the glide-slope-capture point to a mile-and-a-half, give or take. That change made the transition easier, and we rattled off a hook-skip two, three, and four. We couldn't do anything but claw our way up and try it again. Take three was even better to my eye, but we met with the same result. I never would have



Working toward centerline was an exercise in the art of WAG.

swerve, or even worse, blow a tire or two on touchdown.

Working toward centerline was an exercise in the art of WAG. The ship wasn't making much of a wake, and the centerline paint had been rubbed long ago to a black skid mark. Naturally, I aimed for the island—to get close enough to make a play. As a result, the first pass didn't go well. Flying along at cherubs eight, I was late to catch glide slope, because of the centerline issue, and drove it in high, all the way to a hook-skip four. I wasn't going to fall behind in the burble. MRT thumbing the boards that already were in, staring at the balance ball to counteract yaw, with a gentle reminder from the boss to raise the gear, we went into the hot sun at a

believed I'd skip seven wires in one day, but it was a day of many firsts.

Trick-or-treat on No. 3 left us on a bingo profile to Saipan, but not before we saw our gas station whip past our right side. Apparently, the ship wasn't done with us yet, and we tried to gas up at 1,500 feet, dodging rain showers and clouds en route Saipan. Not that we couldn't plug, something wasn't acting right in the buddy store—go figure. We didn't have time for buddy-store troubleshooting at a sub-bingo fuel state, so we quickly left behind the refueling option.

By the time we were 15 miles from Saipan, we were at 6,000 feet, and I could see the island through a patch of clouds off the nose. Our weather brief on the boat had forecast easterly

Me and My Thunderpig

winds, so I set up on a right base for runway 7. When we finally got our clearance to land, it really was for runway 7; at least one part of the flight went our way. After a quick sweep of descent checks and a run-through of the landing checks, we needed to shed 6,000 feet in five miles. PAPI managed to get us on a good glide slope for an uneventful landing.

Fortunately, we didn't shut down in front of a civil-air-terminal jetway where we first parked. Tower personnel thought we had wanted a quick gas-and-go. What they didn't know we confirmed during the post flight. Something seriously had gone wrong with the left engine because there was significant visible damage to the last turbine stage. The origin of our in-flight vibrations was plain to see. Shutting down the engine was the best thing we could have done. Chalk one up for the nuggets.

Postflight-maintenance analysis revealed both turbine disks sustained serious FOD damage, including missing blades. There was evidence of blades scraping the inside of the engine case, and a stator vane completely had failed; that should raise a few eyebrows during the engineering investigation.

Our in-flight emergency went rather smoothly and provided excellent real-world training, with no cost of life or limb. As a crew, we had controlled the situation through sound decisions, based on the information within our checklists. Operating around the ship proved to be a bit of a challenge, as another subset of people was introduced into the recovery process. It would have helped us if we had laid out our entire plan before dumping fuel for the first pass. Once the fuel was gone, we had placed ourselves in a time-critical situation.

In retrospect, dumping down to 5.0 was a good thing. Bolterizing in humid, 90-degree-plus temperatures, single-engine, left us climbing at

700 feet per minute after we got the gear up. That climb rate may sound significant, but it doesn't seem like it when you're in the plane, clawing your way away from the watery depths.

On the matter of the repeated bolters, I was briefed in the air and debriefed after landing; I may have been dropping the nose and allowing the hook to skip. One technique suggested to me at the ground debrief was to place the stick in my lap on touchdown to set the hook. When the plane was brought back after the engine change, the technique discussed at the debrief was tried and resulted in a hook-skip two, three, four with a stab stall. Given the single-engine-climb rate, I count myself fortunate we didn't try the same technique. Had I tried it, the Navy would have four fewer flight suits in its inventory. I could have bent the stick back in my lap on touchdown, and it wouldn't have mattered. Unbeknownst to the aircrew or maintainers, the snubber-pressure gauge was inaccurate and indicated 1,000 psi over the actual pressure, which led to the hook-skip problem.

Always have a divert in mind, if possible. We had Saipan plugged into the system, which allowed us to keep an eye on our safety valve if everything fell through, which it did. To the forecaster's credit, the briefed winds were correct, and the weather turned out to be close to forecast, which helped to make the field landing uneventful.

The true measure of success was walking away from this incident wiser and without a scratch. Did the airplane get stuck in Saipan with a bad engine? Yes. Was it a problem for the maintainers to get the plane back to the ship? Yes. But, as far as the crew is concerned, diverting was better than pulling the ejection handle any day of the week. 

Lt. Staub flies with VAQ-138.

From the Past...

No mistakes made?

IN REPLY
REFER TO

Address:
Commanding Officer
Naval Air Station

IN I
REF

Add
Con
N

UNITED STATES NAVAL AIR STATION
FT. LAUDERDALE, FLORIDA

17 January 1945

To: Aviation Safety Board.

Subj: Pilot's Statement of Accident to TBF1 Aircraft, Bureau
Number 24026.

1. The engine quit while on the cross leg of an approach to a field carrier landing. I could not get the wheels up before the plane hit the land. It bounced once or twice and nosed over. The crew of the fire truck extinguished a small blaze on the engine.
2. No mistakes made.
3. While in slow flight at approximately 100' the engine cut out without any warning whatever. I nosed over to try to maintain flying speed and the plane went down so fast I couldn't get the wheels up, causing the plane to nose over in the soft sand.
4. Since I do not know the cause I cannot suggest a remedy.

JOSEPH H. GEISSENHAINER
Ensign

Rec'd 1/18/45
R. M. S. of yes

The Broken Seal

By Lt. P. R. Rowell

I was stationed aboard the *USS Abraham Lincoln* (CVN 72) in the North Arabian Sea, supporting Operation Enduring Freedom. My RIO and I were scheduled for the pinky launch, 1 v 1 AIC hop, to be followed by a night trap for currency.

We just had finished our preplanned maneuver on the bogey run, when I looked down to see a 2,500-pound fuel split between our left and right systems. "No problem," I thought; "we'll balance it out before getting on deck."

I rechecked our fuel state and saw our right feed tank was at a mere 400 pounds, vice the normal 1,600 pounds. We immediately knocked it off, put the needle on the nose, descended to our medium-holding altitude, and told our wingman we'd see him on deck. We saw a trail of fuel behind us, so we called our wingman to join up overhead for an inspection. By this point, our right system had dropped from 4,500 to 4,000 pounds and was decreasing. The left side was pegged, indicating an overfilled condition. We punched the clock to measure our fuel loss from the right side and called for a CATCC rep. Our wingman reported we were venting at about one-third the normal dump rate. That rate equated to 500 pounds a minute—exactly what we were showing on our timed assessment. Both engines appeared to burn fuel from the right fuel system.

I completed the boldface procedures, but the fuel loss didn't stop from our right side. I set





the right throttle at idle, which minimized our fuel burn from the rapidly depleting side. Fortunately, this action helped. We were concerned about possible trapped fuel on the left side, and we were relieved to see the left system start to burn down. We had two good motors, with plenty of fuel.

Electing not to dump fuel, we aborted our first approach at 10 miles to burn down to max trap. Approach control was very helpful and gave us what we requested. However, it was difficult to manage the ICS, our rep, and the approach. Flying the jet at night, with one engine at idle, at 1,200 feet, while talking to three people, kept us busy. We burned down to our max-trap fuel weight, brought the right engine to approach power at three miles, and made an uneventful landing.

What felt like five minutes actually took 23 minutes from our first indication of trouble to our rollout in the wires. Many people helped us get our aircraft on deck that night.

Once we got to maintenance control, I engaged in a two-hour discussion with our senior fuel-system maintainer. The fuel system in the Tomcat is by no means simple. With 15 tanks, more than 50 valves, and hundreds of yards of strangely routed plumbing, the system is very confusing at first glance.

I checked on several of the fuel cells two days later. Our problem was a broken seal on a line that carried right-side fuel, pressurized to 385 psi, through a left-side tank. The broken seal resulted in right-side fuel overfilling our left side, which forced the excess to be vented overboard.

Here's a few lessons from this flight.

- In an emergency, approach will give you exactly what you need; just ask.
- Basic system knowledge is critical when flying in adverse conditions, especially during emergencies that aren't standard or by-the-book.
- Inviting someone into your cockpit can be very helpful, but getting CATCC on your schedule is up to you. CATCC will ask for information about your condition at the worst time. If you aren't proactive, radio calls will be missed, and ICS comms will be interrupted.
- Spend time during the contingency portion of your brief to discuss a few sea stories about your systems. Sharing experiences can make the difference between success and failure.
- Don't be spring-loaded to detach your wingman when you have a problem; he is an extra set of eyes. ☺

Lt. Rowell flies with VF-31.

The Broken Seal

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Lt. Rowell flies with VF-31.

Crew Resource Management

Situational Awareness

Assertiveness

Decision Making

Communication

Leadership

Adaptability/Flexibility

Mission Analysis



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What Ju

By Lt. Jeff Gaydash

Everyone emphasizes the crew-coordination concept and how important a role it plays in multi-crew aircraft, such as the E-2C Hawkeye. As a mission commander, I always thought about this concept and tried to practice it each flight. But, I never had had to incorporate the crew-coordination concept into an immediate-emergency situation. Don't get me wrong, I've had my share of incidents, but most of them were deferred emergencies, like a trailing wire or unsafe-gear indications. None compared to the incident I just had witnessed.

We barely had landed on the boat after a single-cycle night hop, controlling air intercepts (AICs). We were near the end of cruise, and flight operations were slowing down. After Operation Iraqi Freedom, everything we did seemed uneventful, and our unit-level-training (ULT) flights just weren't cutting it. Two Hawkeyes were airborne, which was uncommon, considering our schedule the past couple of days. We still were trying to maintain that elusive night currency. We were the first Hawkeye marshal took and came in for an uneventful Case III approach and night trap.

We taxied out of the landing area (LA) and headed for cat 2, right beside the foul line. This parking spot had been our normal one for cruise, although not a comfortable one because of its proximity to the LA. We taxied into our spot to be chocked and chained. That's when the whole night—the whole cruise, for that matter—changed.

As we waited for the chocks and chains, we heard a loud bang, accompanied by a heavy vibration in the

aircraft. My first thought was we had thrown a turbine blade or had had a compressor stall. I looked at the starboard engine and saw nothing unusual. However, I did see a tow tractor and some lights beside the tail, which made me think something had hit us. I hadn't heard anything from the pilots; I hadn't thought about calling up front and asking what the situation was.

Imagine the aircraft vibrating, a loud noise coming from somewhere, it's night on the flight deck, and

What Happened?



Photo by Christopher B. Stoltz. Modified.

you hear the pilots say, "Shut them down." To make matters worse, the entire CIC compartment went dark because the engines were shut down with the T-handles, which doesn't allow the emergency generator to come on. How high do you think my situational awareness (SA) was at that point?

Not being one to sit in a dark aircraft with low SA, I made the decision to get out. The funny thing was, my XO was sitting closest to the door as radar operator (RO) for this flight. I looked forward in the darkness and yelled, "XO, get out." How many times as a junior officer can you utter those words?

To make matters worse, the entire CIC compartment went dark because the engines were shut down with the T-handles, which doesn't allow the emergency generator to come on.

All three NFOs started forward through the darkness into the forward-equipment compartment (FEC), toward the main-entrance-hatch (MEH) exit on the left side. Not knowing what was going on and unable to hear anything from the pilots, the XO cracked open the MEH, checked the left nacelle, and got out. We all followed and went aft of the aircraft, away from anything that might injure or kill us.

I saw the plane was not chocked and chained. People were running everywhere, and I looked around for the other Hawkeye that should have landed. What were all those people doing in the LA? I grabbed one of our maintenance personnel on the flight deck and found out the other Hawkeye already had been by. Its right wingtip had flown through our left propeller during a bolter. I could see our left propeller was torn, and the flight-deck personnel already were starting a combat FOD walkdown. Our crew helped out with the FOD search, then went to the ready room.

Looking back at the situation, I realized some of my mistakes. When I think about the propeller and what had happened, I realize our crew was extremely fortunate. My decision to get out through the MEH could have been fatal had the propeller still been turning and not held together. Getting out through the overhead hatch in the combat-information center (CIC) would have been the safer alternative, even at night.

The other lesson learned came from the lack of crew coordination from the front end to the back. The pilots knew what had happened, and they could have told us what was going on before cutting the engines. Good information flow would have influenced my decision as to which side of the plane to get out. In their defense, had I called over ICS and asked what had happened immediately after we heard the noise, I could have gotten the information I needed.

We also discussed if it was necessary to secure both engines. We could have left on the right engine to keep ICS and radios available. This decision not only would have helped us out as a crew, but we could have spoken to tower and told the boss our problem to help out the flight deck.

Good crew coordination definitely would have made this situation more manageable. As a Hawkeye NFO, I rely on the pilots to let me know what's going on around us on the flight deck, especially at night.

Two vital pieces of information didn't get passed. The problem was on the port side of the airplane and the plane was not chocked and chained. Knowing these facts before making any decision on abandoning the aircraft would have been a huge help. Whether it came from the pilots calling me or my asking, talking to each other was the missing key point.

The other E-2C eventually landed safely aboard after an airborne-controllability check. In the flight debrief, we agreed that talking things out would have made a confusing situation much clearer and safer for everyone. 

Lt. Gaydash flies with VAW-124.

By Mark L. Watson

Those words are as clear in my mind today as they were on April 10, 1981. We were a flight of two SH-3Gs, flying from NAS North Island to NAS Fallon for predeployment training. That morning, we attended a normal brief, and our pilot said we would stop at NAS China Lake for fuel and chow. We loaded the aircraft with cruise boxes, a ladder, and luggage, then departed for China Lake.

This portion of the flight was normal, with the exception of an intermittent low howl that came from the gearbox area of the No. 2 engine. The rest of the crew seemed to dismiss this noise; in fact, they even had a name for it, "the H-3 howl."

I was a new rescue swimmer, with less than 20 hours of flight time, and I was excited about going to Fallon for combat-search-and-rescue-training flights. We never did get to those flights.

Before departing China Lake, the pilot, first crewman, and I decided, because we were over land, and it was too hot, there was no reason to wear flotation devices. Never mind our flotation device is connected to the rest of our survival equipment. The copilot and our second crewman (another qualified first crewman, who decided to fly in our bird) wisely continued to wear their SV2s.

The takeoff and departure were normal, as we fell into a right trail with the lead

Fire! Fire!
Mayday! Mayday!
We're Going Down!



aircraft. Then, 10 minutes into the flight, the second crewman and I heard a muffled "bang." The first crewman said it might have been one of our main-gearbox doors opening in flight. Our pilot asked lead to come over and check us. After our wingman gave us a clean bill of health, and we couldn't determine the source of the bang, we continued on our way.

The flight was going great. We were cruising next to Highway 395 at about 700 feet AGL, and I just had finished filming Mount Whitney with my hi-tech, 8 mm camera. I was walking forward when there was an unbelievably loud "H-3 howl" that ended in an even louder "boom." We immediately had a cabin fire that spanned from the overhead to the deck of the cabin just aft of the HAC and was half the width of the cabin. I quickly went to the troop seat nearest the aft-cabin door and strapped in.

The HAC entered an auto-rotation and made the call, "Fire! Fire! Mayday! Mayday! We're going down!"

I watched with admiration as the first crewman



went forward toward the fire and reached behind a curtain of flames to retrieve our only hand-held fire extinguisher. As the first crewman ran aft, he fell on the deck, dropping the fire extinguisher in front of the second crewman and myself. I picked up the 30-second CO₂ fire extinguisher but realized I had absolutely no idea how to use it. Fortunately, our second crewman didn't hesitate to remove it from my dumbfounded hands, and he attacked the fire. By this time, a wall of flames covered the entire width of the cabin, quickly rolled aft, and cut us completely off from the pilots. The 30-second extinguisher lasted maybe 10 seconds, but it was enough to temporarily slow the advancing wall of flames.

As all of this was going on in the back, our pilots

more than had their hands full (as we later discovered). When the No. 2 engine's high-speed shaft departed the aircraft—because of a gearbox malfunction—the shaft or something else slammed through the overhead. The fuel lines were severed at the cross-feed valve, which caused the left engine to flame out because of fuel starvation.

In the back, we followed the NATOPS procedures for cabin fire. We closed the cabin door, which caused thick, black smoke to instantly fill the cabin and cockpit. Our HAC was forced to stick his head out the window to see during the autorotation. The HAC told us over the ICS to open the cabin door, which cleared out the smoke enough to give me a great, though unwelcomed, view of the quickly approaching desert floor.

While many thoughts went through my mind during this surreal ordeal, I tried to focus on the wall of fire melting my seat a few inches from where I was strapped in. I placed my hand on the seatbelt release and was ready to trigger it so I could join the first crewman who was spread out on the deck aft. Only the two aft-most seats on each side were not on fire. I saw the horizon shift as the HAC initiated the autorotation flair. I could feel our rate of descent stop and then pick up again. What I didn't know was the HAC had initiated the recovery early, trying to balloon the aircraft over a ravine.

As the descent again started, and I saw the ground coming up fast, I didn't feel our rate of descent decrease as before. We hit the ground hard and rolled right; I was compressed into my seat, then thrown forward into the fire. Had I inadvertently released my seatbelt because I held the release with my hand? I felt something, maybe a cruise box or ladder, hit me. I was on fire. I was a ray of light aft of the cargo door, and the top of the door was less than two feet from dirt.

We hit the ground hard and rolled right; I was compressed into my seat, then thrown forward into the fire.

The emergency egress procedures we had briefed automatically came to mind as I crawled through the exit.

1. Make sure the blades are stopped. Yep, what's left of the blade is stopped—stuck in dirt.

2. Get clear of the aircraft. I set a record in the 100-yard dash.

3. If I am on fire, lie down and roll. Although I could feel the heat, I no longer was on fire; back to the 100-yard dash. The heat I felt was because of the molten metal and melted plastic that covered my flight suit.

As I looked back, I saw the other two crewmen come out of the fire the same way I had escaped. The pilots quickly appeared forward of the aircraft. We came together, checking each other for injuries, and, to our amazement, we were all in good shape. My HAC pointed to my left hand. As I looked down at the second-degree burns, I remembered I had removed my flight gloves during the flight, exposing my bare

skin. Why? Well, they were too uncomfortable to wear. Unfortunately, I was about to find out the treatment for such a burn is much more uncomfortable than following NATOPS. I also received two burns from molten metal that had gone through my flight-deck jersey and into my chest. I had my flight suit zipped down for comfort—I would say I tried to look like a "Top Gun" pilot, but that movie hadn't yet been made.

As we stood, watching the magnesium in the main gearbox burn, along with the rest of the aircraft, our wingman came in low to see if we were OK. But he had to climb when pencil flares started shooting into the air from the burning wreckage—a reminder some of us didn't have something else: our SV2s.

I learned many lessons the hard way that day. Make sure you know how to operate your emergency equipment, and, most of all, wear your flight gear at all times. You may not have the time to retrieve it if you ever hear these words: "Fire! Fire! Mayday! Mayday! We're going down!"

I had the chance to use my flight gear again six years later, and I did wear all the proper gear, but that's another story.

The pilot and first and second crewmen received air medals for their skill and courage that day, as well as the heartfelt thanks from my family and me. 

Mark Watson is a retired ADCS and currently is an A & P mechanic.

Note to editor from the author: I read the final mishap investigation of this incident years later, and, to the best of my knowledge, it was caused by a main-gearbox-gear-plating process that broke down, causing an input failure. The flight suit I wore was taken from me, and I was told it was sent to the Safety Center. Just the heat from metal and plastic transferred, but the flight-suit material did not burn through. Our wingman and his crew said we had flames pouring out of the main-rotor head and transmission area—it looked like someone had put a fan over the top of a bucket of burning fuel. We could hear the HAC in the other aircraft repeating the same thing over and over on the radios "Get it on the deck now, Kick; it's bad—it's bad!" (Lt. Kickla was our HAC). At the time of the mishap, I was a new E-5, and hadn't been out of aviation-rescue-swimmer school very long.

The mishap board determined that if we had had about 200 more feet of altitude, if the first crewman had not gotten the fire extinguisher, and if the second crewman had not used it effectively, all of us in the back most likely would have perished because of the rapidly moving fire. We quickly were running out of places to go.

Thin Air

By LCDR Pete Yelle

My first cross-country trip to the San Francisco Bay area included several training sorties for the TraCom. Because of the limited number of T-39 N models in the inventory, several CT-39s were brought out of retirement and converted to G models, which we used for non-ground mapping, air-to-air radar, and NFO trainers. So, as we boarded the mighty T-39G, our anticipation grew. CTW-6 SOP allowed for up to seven souls on board, so we could facilitate many student sorties during our trip. On that sunny summer morning, we had a full bus.

With the engines cranked and the cool AC blowing, we settled in for our long trek. During these NFO-training sorties, the instructor NFO sits in the modified jump seat between the pilot's and copilot's seats, and the student occupies the copilot's seat. The pilot for this event was an experienced, NATOPS-qualified, civilian-contract pilot, who had more than 10,000 hours of flight time, mostly in USAF tactical jets and our T-39N models. The major CRM issues with the T-39G is that during its upgrades, each aircraft ended up with a somewhat different cockpit-instrument configuration, and each differed significantly from the T-39Ns.

The most obvious model variation is the cabin-pressure regulators and their associated instruments. The N's pressure system is controlled automatically, like most Navy tactical



jets: The cabin is pressurized at 8,000 feet, and the regulators maintain a fixed scale as the aircraft climbs to higher flight levels. The G model had a manual regulator, which is set by the copilot if the planned cruising altitude is expected to be greater than about 14,000 feet. To make matters worse, the cabin pressure and cabin vertical-speed-indicator (VSI) gauges are in different cockpit locations throughout the G models—a significant difference from the N's. NFO instructors are very aware of the gauge locations and tend to closely hawk them during

Just as I commented on the superb flying conditions and how well the jet was working (yeah, I know, super jinx), things began to go bad.



flight. However, your routine instrument scan must be altered from aircraft to aircraft, which aviators know is not good. Since our flight would be long and high, my game plan was to pay even more attention to those specific, seemingly invisible gauges.

We had an uneventful takeoff and climb-out to FL310 and leveled off with the Mississippi River in clear view—visibility unlimited. Just as I commented on the superb flying conditions and how well the jet was working (yeah, I know, super jinx), things began to go bad.

As I checked the cabin VSI gauge—for what seemed like the millionth time—it cycled from a positive 500-feet-per-minute to a negative 500-feet-per-minute. Before I could utter a word, it pegged negative, and we had a rapid decompression at 31,000 feet. The pilot and I executed the boldface, and I began to coordinate a descent and notified the rest of the crew of our pressurization failure. Part of the boldface requires manual deployment of the oxygen masks (the same system as the airliners). An emergency-automatic-deployment activation is supposed to automatically drop the masks; however, neither the auto- nor the manual-deployment systems worked as advertised. Fortunately, another instructor in the back pulled open the mask doors and activated them for the aft students.

We were busy coordinating the descent from up front, which was a CRM nightmare because of the emergency-ICS-system activation. Anyone who has flown in the T-39 (N or G model) know how painful it is to communicate over the ICS or UHF-VHF radios, while wearing the oxygen masks. Even with the hundreds of times I had demonstrated the system for students and had practiced the procedures, I still couldn't make it work to where the controllers could understand me over the noise. I was forced to stay on normal ICS and the radios, while taking breaths from the oxygen mask in my other hand. Even while coordinating the emergency with ATC and the crew, I fully was aware of my risk of hypoxia and knew to get on oxygen when I felt hypoxic.

In retrospect, I somehow instinctively knew my limits and how long I had off oxygen before I'd feel the effects of hypoxia. The every-four-year aviation-physiology training required for aviators, including the chamber ride and associated ground school, were key in my recognizing the symptoms and helped me keep useful consciousness throughout.

We descended below 10,000 feet and recovered back home. I still haven't been to the Bay area, but, thanks in large part to our av-phys training, I'm able to live another day and prepare for my next flight. 

LCdr. Yelle flies with VAQ-130.

WHO'S THE CLAMMER?

By Lt. Matt Menza

We were scheduled for another FCLP period at El Centro before our flight-deck certification aboard USS *John C. Stennis* (CVN 74). One of our two Prowlers on det to North Island was down for minor maintenance problems, so we flew three priority pilots in one jet to El Centro for our 1500 Charlie time.

The pilot at the controls was our head LSO, so he bounced first. We landed when he finished, and I climbed into the front seat. My other single-anchor comrade jumped out to join the team in the LSO shack. About 10 minutes after we had full-stopped to let out the LSOs, we took off for my first pass.

As we lifted, ECMO 1 mentioned bird activity to the right of the aircraft, but the birds were no factor. After an uneventful first pass, I saw more low-flying birds around the airfield. As we rolled into the groove, the jet shuddered, and the left engine chugged twice. The vibration was significant, and as ECMO 1 called the ball, I said, "We're full-stopping. I'm not sure if we took some birds into the motor, or what."

We rolled to the end of El Centro's long runway; the braking was normal. We called paddles and told them what had happened, and we asked if they had seen any birds on final, or any smoke or flames from the aircraft. Everyone in the LSO shack said they had seen nothing. As we taxied back to the holdshort, I requested the LSOs send out the new guy to give the aircraft a once-over and to look for feathers or airframe dents. If everything looked good on the outside, we'd do some throttle chops to assess the health of the engine.

Unfortunately, we never got the chance to check the engine.

As we taxied to the holdshort for our inspection, I applied the brakes to slow the jet before turning



onto the next taxiway. The left brake felt unresponsive, so I released the brakes and reapplied pressure. Again, the left brake did not respond to my input, so I pushed harder until I got the response I wanted. The aircraft slowed, but the brake still felt mushy.

We parked in the holdshort, the new guy came out, and then he disappeared under the left wing. He quickly reappeared with a panicky look on his face and gave me a hand-signal that seemed to indicate a numerical distance. I didn't know what he meant. I tried to read his lips, but I was more focused on his hand signals—he was showing a distance that gradually increased.

When he stepped away from the jet, his eyes grew wider, and I knew something wasn't right. Then he began mouthing, "Fire."

I called tower and said, "Tower, paddles says we are on fire. Apparently our left strut or brake is on fire. Could you roll the crash and fire trucks?"

Tower, not knowing who had called, asked, "Who's the flamer?"

I scratched my head, contemplating the radio call, and replied, "500."

A quick "Roger that, sir," followed.

I called the LSO shack and asked if they could see any indications of fire. They said our left brake and strut were on fire. I motioned to our nugget to move away from the aircraft in case the tire exploded. The kicker was, we didn't want to shut down the engines, because excess fuel from the primary manifold would be drained next to the mainmounts. We certainly didn't want to turn a fire into an inferno, but we were sitting in a burning jet.

The new guy moved away, and we sat for what felt like forever in an aircraft with 8,000 pounds of fuel, both engines running, and the left strut on fire. The new guy signaled the fire was growing, indicating a distance of about two feet.

I got impatient after that signal and, with a little more excitement in my voice, asked tower where the fire trucks were. Tower said they were on their way. Then the safety-fuse plug on the left main tire blew. Our new guy hit the deck so fast I thought a mortar round was inbound.

As the aircraft sagged to the left on the flat tire, the fire crew arrived and hosed down the flaming brake. Once the fire was out, they pinned our stores and landing gear and gave me the signal to shut down.

As I climbed out of the cockpit, I got belted with a

stream of water coming from the firetruck turret. I held onto the jet, trying not to be blasted to the deck by the force of the water. The firefighters directed the stream to the re-ignited fire coming from the brake assembly. I scurried off the jet like a wet rat.

After I bravely ran away from the jet, the brake area erupted a third time, in a beautiful orange flame. The fire crew held the water stream on the brakes for several minutes to cool them. Ten minutes of fire-free excitement was long enough for me to work up the courage to inspect the wheel-brake assembly.

The brakes had overheated because they simply couldn't absorb all the energy from two closely spaced, full-stop landings at a higher-than-normal gross weight. Fortunately, the Prowler is sturdy, and the fire caused no other damage.

When he stepped away from the jet, his eyes grew wider, and I knew something wasn't right.

Our maintenance crew drove over the "hill" from San Diego and determined the chugs had resulted from a loose engine-intake housing. They spent the night replacing the brake assembly and tightening the intake. Because of their hard work, we flew onto *Stennis* the next day.

As with any aviation-related excitement, several lessons are to be learned. Our new guy was leery of giving us the lazy-eight signal to indicate a fire, fearing we would shut down the engine and drain fuel onto the brake fire. He forgot the signal for hot brakes and made up his own. The difficulty I had understanding his signals delayed our call for the crash crew.

A little ORM applied before the flight might have identified multiple heavy, full-stop landings in warm weather as a hazard. Prowler brake performance is considered marginal, so, at the very least, we should have been more aware of the possibility of hot brakes.

With engine chugs but good cockpit-engine indications, we could have taken it around for a field arrestment. This action would have prevented the possibility of hot brakes because of the previous heavy landing. We could have avoided explaining to the skipper why we left a jet in El Centro with scorched brakes and a blown tire. 

Lt. Menza flies with VAQ-140.

A Loose Nut Behind the Stick

By LCDR. Tim Carr

For the first time in two months, I would enjoy a beautiful afternoon in the Eastern Mediterranean. My air wing's participation in Operation Iraqi Freedom almost had been exclusively at night, and we were returning to a day schedule. Nobody really had grown accustomed to Dracula hours, and some of our pilots actually had become transparent, so the shift to daylight was as welcome as any port call.

My transition to the operations officer's "In the rack by 0300, out no earlier than noon" game plan was not progressing as forecast. On the first day back, I was scheduled for a 1500 launch on a good-deal, functional-check flight (FCF). I was not at the top of my game after a restless night's sleep but was confident I could handle such a simple flight. With less sleep, I had led numerous six-hour, tanking-in-the-goo, and dodging-hot-metal hops over Iraq. In comparison to

those, this flight would be a breeze.

My war bird was no hangar queen, so preflight, man-up and poststart checks went smoothly. I was enjoying the sun on my face but was surprised how tired I felt in the middle of the day. No worry. I thought, the adrenaline of a catapult shot would get me through the next hour and a half. Little did I realize, the jet and my stupidity would supply enough adrenaline to keep me wide-awake the rest of the day.

Halfway through my flight, I performed crossbleed and trailing-edge-flaps checks, shutting down one engine at a time to do so. With the right engine shutdown, I was surprised to hear a "flight controls" voice alert and watched as the nose abruptly pitched down 30 degrees. The flight controls had reverted to a very degraded state called MECH. I managed to reset the flight controls and returned to relatively straight and level flight, albeit with a slightly accelerated heart rate. I added my adrenaline pump to the mix.

The flight controls in a Hornet have a tendency to revert to MECH during FCFs. MECH occurs during crossbleed and trailing-edge-flaps checks, when the hydraulic-system demands exceed capacity during this single-engine procedure. NATOPS and the FCF checklist warn that the operating-engine rpm must be kept above 85 percent to prevent MECH reversion. I incorrectly assumed this situation had happened to

ORM Corner

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me. After all, I was tired and 24 hours out of my sleep cycle. Maybe I failed to confirm the left-engine rpm was above 85 percent. I thought, why not do the checks again? Maintenance needs the jet, and I would hate to disappoint them. This time, I'll make darn sure the rpm is wound way up.

"Flight controls, flight controls"—how could Betty sound so calm when the jet was in a 60-degree, single-engine dive in MECH? I again reset the flight-control system and decided War Party 411 would not get another chance to do that to me. "What an idiot I was for not trusting myself the first time. No sir, not gonna do that again," I thought. "I will play it safe and just wait for the recovery."

It did not take me long to rationalize another attempt at the trailing-edge-flaps check. I reasoned the jet was flying fine, the flight controls had successfully reset, and I would be a hero to the maintenance master chief if I finished this thing. Two minutes later, I had one engine on line, flight controls in MECH, and a windscreen full of Med coming up to meet me.

Here's a scenario: there was no reset, and I could not pull out of my dive. I hit the water at more than 500 knots, and now I write this as a "ghost writer."

Actually, the flight controls did reset, and I returned to level flight. My heart definitely was pumping; I would have no trouble staying awake for the Case I recovery.

That's right, Case I. I may have been wide-awake, but I was not any smarter. Zip-lip, two of my squadron mates joined up, and I merrily led us down to the s*%#-hot break. I do not know if the break was nice because I was too distracted by Betty, who said, "Flight controls, flight controls" at the 90-degree position. Fortunately, the malfunction was a dual hydraulic-servo failure of a single stabilator, not MECH reversion. I recovered safely, without the

SHB upgrade from paddles, and I was lucky to be alive.

This flight was full of headwork errors on my part. The errors began before man-up when I didn't admit I was too tired to fly. They continued throughout the flight when I second-guessed myself and disregarded multiple warnings from the jet. Finally, coming back for the break may have been the stupidest decision I ever have made (maybe not). If the flight controls had reverted to MECH when I was at 600 feet and 85 degrees angle of bank, I would have been short of options. I wanted this day hop awfully bad, and that is what I got. I cannot pretend I was unaware of the self-induced pressure to fly. After a solid month of night flights, I wanted the day flight and a fresh look at the Case I pattern.

I knew maintenance wanted to get this jet back in action after a long time in the hangar. None of my reasons would have been worth that aircraft or my life.

LCdr. Carr flies with VFA-87.



Photo by Matthew J. Thomas, Modified

Cross-Cockpit IMC Quick-Stop

Time constraints, however, thwarted our plan; we had one night to get the full-mission profile knocked out.

By Lt. Mike Jenkins and Lt. Dave Mullins

The schedule had our HSL detachment participating in evening maritime-interdiction operations (MIO). We were to provide the SEAL-sniper platform for a full-mission profile of a simulated noncompliant boarding. For the helo crew, the idea behind the evolution was relatively simple. We were supposed to arrive in an 80-foot hover at a lateral range of 100 to 300 yards, as the SEAL team "hooks in" to the ship being boarded.

We didn't want to arrive early because the helo's noise could tip off the vessel's crew, which could allow them time to prepare their defenses for the boarding team. We also didn't want to arrive in position too late, because there would be no coverage for the first couple of SEALs boarding. The trick was to arrive at the same time as the RHIBs holding the SEALs. Then, after we were in position, all we had to do was stay there until the SEALs firmly had the situation under control, and we were released to return to our ship. Sounds simple enough, right?

We had discussed taking a couple of days to train properly: meaning step-by-step. We wanted to crawl before we walked. We initially wanted a daytime flight for each crew. We would get a solid visual reference, talk about everything we learned, and practice the

maneuvers at night. After completing the day-and-night practices, we were comfortable to support any full-mission-profile MIO boardings. Time constraints, however, thwarted our plan; we had one night to get the full-mission profile knocked out.

Our services were required from 0100 to 0400 in the morning—only one flight for our mighty steed. To compensate for the abbreviated timeline, we added a flight before the required one, and we would fly two aircraft commanders together, instead of a regular crew. At least we'd have two ACs qualified for MIO, instead of a HAC and an H2P. Having two qualified HACs also increased safety, considering the accelerated timeline. We thought we did a good job stacking the deck in our favor by figuring out the best way to support the mission, maximize the training, and do it as safely as possible.

The crew was set to be a lieutenant (the det's MO) and myself (the det's OpsO) up front, with our AW and two SEALs (one a sniper, the other a spotter) in the back. We briefed the plan for both flights. The first flight was to be a practice that consisted of at least three approaches to the port quarter of our ship, followed by three approaches to the starboard quarter. We would get a feel for what the approaches called for, and the crew could iron



Photo by Matthew J. Thomas. Modified.

out communications difficulties that inevitably arise between the SEALs and the helo guys. We also discussed the second flight; it was an extensive brief.

Afterward, our OinC sat us down and talked about what it is like for two ACs to fly together. The MO and I looked at each other in a mildly confused manner. The OinC had spoken to us from time to time regarding evolutions that required our close attention to make them go smoothly. We were a bit confused this time because, "Hey, we are two aircraft commanders. What could go wrong?"

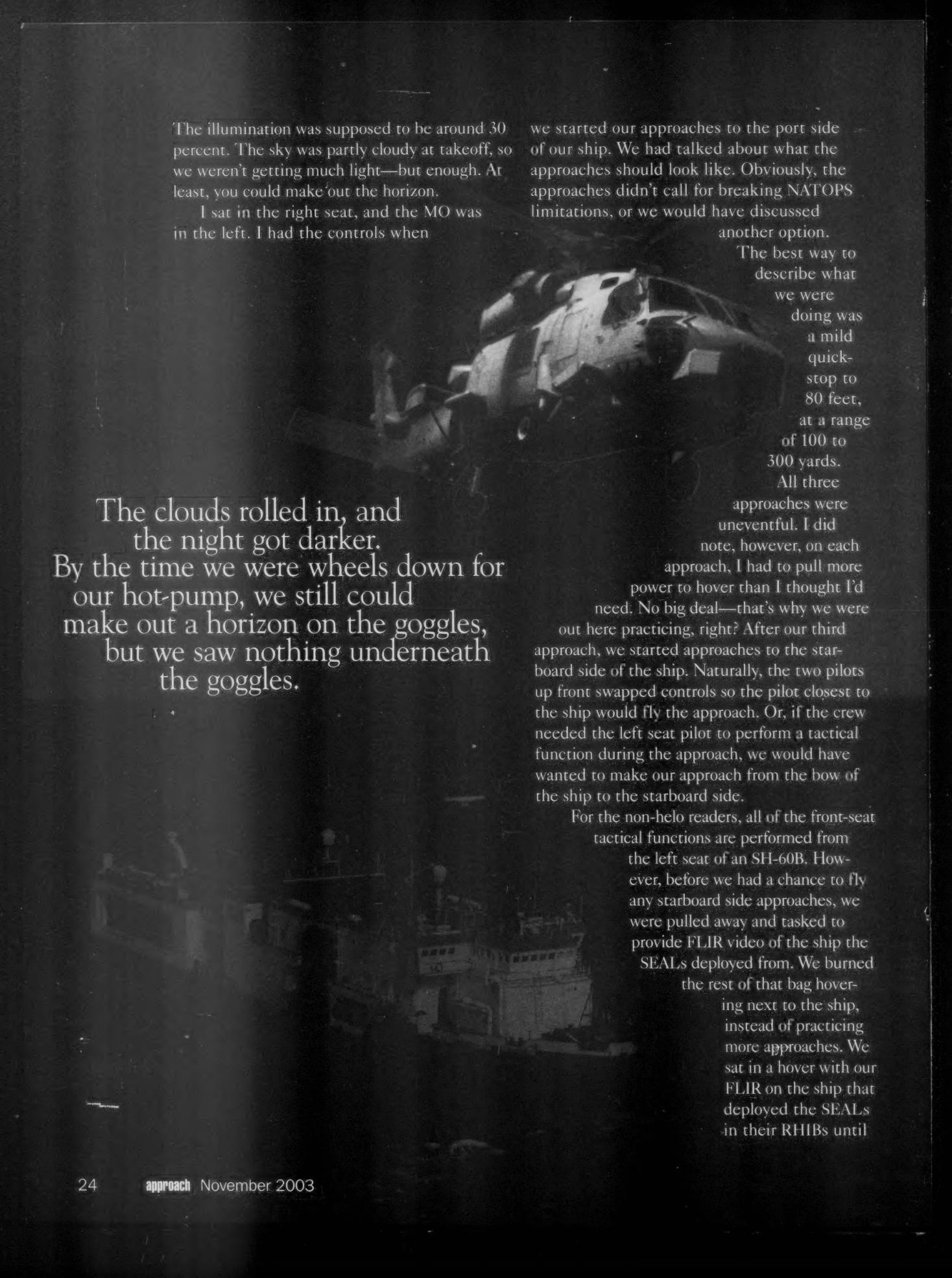
The OinC mentioned how our natural tendency might be to feel safer than usual, which is true because of more experience in the cockpit. More experience always is better than less. At the same time, he noted that every bad spot he'd found himself in was with another HAC beside him. So, our sit-down chat was to reinforce the idea of, "Yes, this is a strong crew, but, at the same time, keep your guard up."

What he said made sense, but I don't know if I took it on board as I should have. I was

excited to fly, and we didn't fly together too often. I looked forward to a break from having a knucklehead H2P next to me, making sure he didn't kill us.

I signed for the aircraft, and I think this is where we made the first minor mistake. I never had flown a single flight with a sniper in my aircraft, while the MO had flown more than 10 noncompliant boardings on his last cruise. The reason I signed for the aircraft this time was because the MO had signed for it the last time we flew together. No more thought went into it than that; it wasn't a big deal. It wasn't as if we weren't going to communicate effectively, but he should have signed for the aircraft because of his experience. I knew about the mission, too, but I had zero actual experience. I certainly was in the mindset of gleaning as much knowledge as possible from him during our flights together that night.

We launched uneventfully around 2130, knocked out our after-takeoff checks, put on our NVGs, and set up for our approaches. It was dark out, but we could see well on the goggles.



The illumination was supposed to be around 30 percent. The sky was partly cloudy at takeoff, so we weren't getting much light—but enough. At least, you could make out the horizon.

I sat in the right seat, and the MO was in the left. I had the controls when

we started our approaches to the port side of our ship. We had talked about what the approaches should look like. Obviously, the approaches didn't call for breaking NATOPS limitations, or we would have discussed another option.

The best way to describe what we were doing was

a mild quick-stop to 80 feet, at a range of 100 to 300 yards.

All three

approaches were uneventful. I did

note, however, on each

approach, I had to pull more power to hover than I thought I'd need. No big deal—that's why we were

out here practicing, right? After our third approach, we started approaches to the starboard side of the ship. Naturally, the two pilots up front swapped controls so the pilot closest to the ship would fly the approach. Or, if the crew needed the left seat pilot to perform a tactical function during the approach, we would have wanted to make our approach from the bow of the ship to the starboard side.

For the non-helo readers, all of the front-seat tactical functions are performed from

the left seat of an SH-60B. However, before we had a chance to fly any starboard side approaches, we were pulled away and tasked to provide FLIR video of the ship the

SEALs deployed from. We burned

the rest of that bag hovering next to the ship, instead of practicing more approaches. We sat in a hover with our FLIR on the ship that deployed the SEALs in their RHIBs until

The clouds rolled in, and the night got darker.

By the time we were wheels down for our hot-pump, we still could make out a horizon on the goggles, but we saw nothing underneath the goggles.

we had to come back to the ship for our 0030 hot-pump.

The clouds rolled in, and the night got darker. By the time we were wheels down for our hot-pump, we still could make out a horizon on the goggles, but we saw nothing underneath the goggles. The MO said, "The windows and windscreen look like someone has spray painted them black."

We were late launching because we were instructed not to get airborne until we had heard the predetermined code word. Well, we did get off, but late, and we should have had plenty of time to get into our initial loitering position. Some slop was built into the schedule of events to allow for unforeseen delays.

We rolled through the after-takeoff checks, then heard a code word go out that corresponded to an event that wasn't supposed to happen for at least another 15 minutes. Regardless, the SEAL RHIBs were in position and making their run on the simulated suspect vessel. I still was at the controls, so I dipped the nose and pulled in some power to get to where we needed to be a bit sooner. The MO asked where we were in the execution checklist.

There were two distinct code words that meant "go." One word was for the SEALs in the RHIBs, and we had a different one that told us to get in position. We made it to another loiter position, closer to the suspect vessel, where we cut figure-eights in the sky at 500 feet while waiting for our "go" code word. Confusion on the checklist obviously was because the RHIBs showed up early.

It was apparent when the RHIBs got their code word to "go," but someone forgot to tell us our code word. We asked about our word while we watched the RHIBs close the ship, but we maintained our standoff. We still didn't know from what side to conduct our approach. If the approach was from starboard, the option of coming around to the front disappeared as we watched the RHIB speed up the suspect vessel's wake. By this time, the last of the horizon on goggles disappeared—it was totally black outside—the inkwell existed not only to the naked eye, but also on NVGs. There was a bright dot in our world on NVGs, and it was the simulated

suspect vessel's nav lights, which were all we could see.

We were very anxious because we didn't hear our call to go. We didn't want to be late in position, but, with every passing second that we didn't get our "go" code word, the severity of the maneuver to get into position on time increased. We finally got word what side the SEALs were going to climb aboard—you guessed it, starboard side. We quickly discussed swapping controls but decided to leave it in my hands.

My thought process to keep controls included four points:

First, one of the objectives of the operation was to maintain solid FLIR footage of the SEALs going up the side of the ship from our helo. Our AW had a tendency to stray from the task when he was operating the FLIR (he sometimes looked at what he wanted to look at, when he should have been looking at what we had decided he should be looking at). The MO would run the FLIR to make sure we got the footage we wanted. He couldn't do that and fly at the same time.

Second, I thought since the MO had done this mission before, he would say something if he didn't feel comfortable with my plan.

Third, I didn't realize the horizon completely had gone away; it did so relatively slowly.

Fourth, we had hovered less than an hour and a half ago on the last flight cross-cockpit, with little horizon, and didn't have a problem. Why should this event be any different?

The MO agreed with the first point of my thought process; he also agreed with my third and fourth points. We quickly briefed the plan and agreed that if I lost visual contact of the ship, and if anything didn't look good, then the MO would come on the controls and help out. The MO and I were preoccupied anticipating our "go" code word to get into position, and we didn't step back to give what we were about to do another sanity check.

When we finally got the word to go, I dumped the nose quite a bit toward the suspect ship and pulled in 100-percent torque to maintain our 500 feet—we rushed toward the ship. We watched the RHIBs on FLIR as they neared the ship. When I flared to slow down, I also lowered the collective

to start our descent and arrive at our pre-briefed 100-foot hover. The sniper then would move us as required, to go no lower than 80 feet. I scanned my radar altimeter, my artificial horizon, and the simulated-suspect vessel.

Because the approach was cross-cockpit, and the nose-up attitude was significant (sorry, no real data points on that, nothing crazy for daytime but stupid for this altitude, with no horizon on NVGs at nighttime), I lost sight of the ship. I sat up as high as possible and leaned forward to try to find the ship, while I told the MO that I had lost sight of it. He said we were at a safe distance, and I maintained my flare until I felt the shudder of translational lift disappearing.

I still was distracted because I couldn't see the ship. I also felt uncomfortable, knowing we were relatively close to it. I tried to scan the ship but had no luck, so I relied on the MO to give feedback for our clearance. My hover bars came alive, and I rocked the nose over and

The whole experience felt surreal.

began to pull. I even reminded myself, "Hey, remember you need to pull more here than you think!" Boy, was I right!

I saw the radar count down, 100, 80, 60 feet, and, with each tick it passed, I pulled more and more. I don't know exactly when the MO started to help me pull; I didn't feel him on the controls until it felt like we had started to climb again. I also thought he pulled in a bit more after I had stopped. The lowest altitude I saw was 40 feet, but the sniper thought we were as low as 10 feet. A ship observer, aboard the simulated-suspect vessel, also thought we were below 40 feet.

We climbed to 200 feet in a heartbeat and experienced the classic yaw to the right

associated with such a massive power pull. We momentarily saw some red-torque cubes. We quickly got things in order, then it was quiet for a while. We tried to hover on the starboard side, but communication difficulties with the SEALs, combined with the lack of horizon and our near-dip, proved too much to continue; we called it a night.

I'm not going to rehash everything that should have tipped us off to stop what we were doing. The whole experience felt surreal. What upset me the most was that I didn't stop the flight earlier. I pride myself on looking into the future and anticipating difficulties, identifying them, and fixing them or avoiding them. Our MO is the same way. I think flying with the MO and the respect I have for him as an aviator made me think we could overcome anything.

We did overcome some things—we did not crash the aircraft. Considering what we tried to do, I'd say that fact certainly is significant. The MO may have saved our butts; the altitude loss happened so fast I really couldn't say if his input made the difference or not. If I had been with an H2P, and we had been setting up to do an IMC cross-cockpit, quick-stop to the back of a ship at 80 feet, I know I would have said, "No, I don't think so. Let's try to think of something sane to do instead."

We laughed at the debrief like frightened children might do after getting away with something. I thanked the OinC for having that chat with us and told him I now knew what he meant when he said two HACs quickly can get themselves into a mess. The good news is they probably can get their butts out of it quickly too—let's not test that theory, though.

We asked too much of ourselves and could have had more trust in our AW. We could have emphasized to him the importance of keeping the FLIR on the SEALs.

The OinC also said, "When you start to fly, your comfort zone is small. As you learn and start to find the boundaries, then your comfort zone grows and grows until you scare yourself; then, it shrinks a little. At that point, you are a safe, solid and good aviator." 

Lts. Jenkins and Mullins fly for HSL-44.

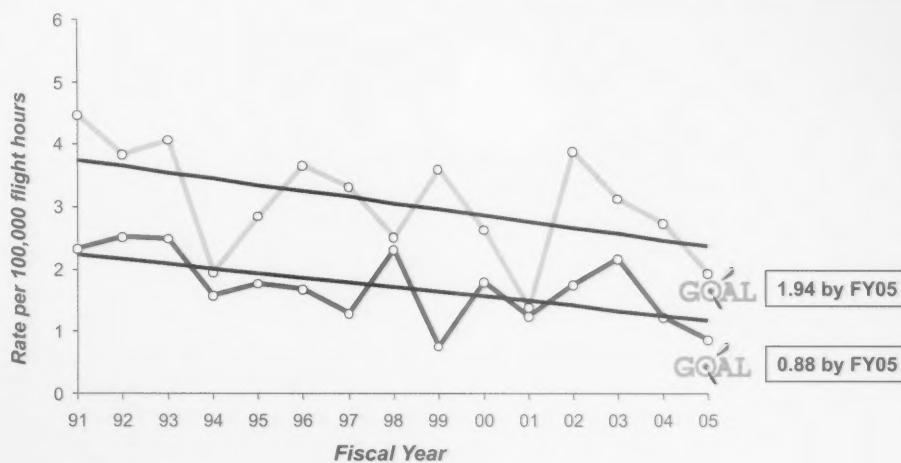
TOWARD THE GOAL...

The goal for naval aviation is to reduce mishaps by 50 percent over the next two years. The Naval Safety Center staff is dedicated to helping save the lives of our Sailors, Marines, and civilians, and saving valuable assets.

This magazine, through stories from our readers who share their real-life experiences, plays a role toward that goal. The Safety Center conducts cultural workshops and sends survey teams

to units, offering advice and critiques. Our website is designed to provide a wide variety of information; visit it at www.safetycenter.navy.mil. Safety programs that focus on operational risk management (ORM) and crew resource management (CRM) make a difference in the way we do business.

The above chart shows our Navy and Marine aviation Class A mishap rates since 1991. If you compare our recent rates of the last decade to historic rates, we're doing well. But, if you look back over the past



few years, the decline has flattened out. The bottom line: we must do better! We still lose too many aviators and damage too many aircraft. A 50 percent reduction will mean 14 Navy and Marine personnel and over \$300 million are saved, not just one time, but year after year. Yes, our operational commitments are heavy, and yes, the reduction goal is challenging.

Take a few moments and read the mission statement that appears on the inside front cover of this magazine. Let's work toward the goal.

Mishap-Free Milestones

HS-75	25 years	54,500 hours
VF-32	5 years	17,608 hours
VRC-40	20 years	
VAW-115	18 years	38,000 hours
VP-8	25 years	154,000 hours
VAQ-209	26 years	27,617 hours
VAW-125	35 years	
HMT-303	21 years	162,602 hours

Big Egos *in a* Small Plane

By Lt. Chris Perry

I was halfway through advanced helicopter training at Whiting Field and looking forward to a long weekend off from flight school. My brother, a civilian pilot, had borrowed a friend's plane to pick us up and head back to Tennessee for the weekend. I also was bringing home a Marine-helicopter-pilot friend to show him the Nashville nightlife.

My brother and his friend brought the single-engine Piper to Pensacola Regional Airport in the midafternoon. My friend and I arrived while they were refueling the bird; we topped-off the fuel. After introductions, my brother and I went to file a flight plan. The weather did not look great, and the plane just was big enough to hold our gear and us. All four of us were instrument-rated pilots.

I was anxious to get away from all the military preparations I'd been dealing with in flight school, so I didn't do a weight and balance. Besides, I had nearly 70 hours flying this aircraft and thought I knew her capabilities well.

On the takeoff roll, I realized how bad a mistake I had made. As we reached rotation speed, I pulled back on the yoke, but the bird wouldn't leave the ground. The plane needed an extra 20 knots of airspeed to get off the deck. I could feel the plane still struggle in the climb, somewhere between stalling and 75 fpm on the VSI. When we cleared the trees at the end of the runway by 15 feet, and I let out a sigh. We continued to climb so slowly that departure would not let us turn on-course until we S-turned for nearly 10 minutes to reach a safe altitude.

As we turned northward and climbed, the

small plane handled better as she burned off fuel. When we made it to the Montgomery area, I felt much better about the flight. I had learned from my lack of proper planning, and I thought we would make it through the rest of the flight just fine.

The thought of a smooth flight was short-lived, as a large line of thunderstorms loomed over the northern horizon. I could foresee using my newly acquired instrument rating from flight school, but I wasn't too worried about the storms because my brother was a charter-jet pilot, with thousands of hours. Reassuringly, he didn't appear to be taking our ride in the little Piper too seriously—that is, until I saw his reaction to the approaching cumulonimbus clouds. It got quiet as he decided to go on through the clouds.

We flew into the darkness, with the rain becoming deafening. The small Piper felt strong, but the altitude oscillations were scary. My brother said not to try and hold steady on the altitude, but to let it vary a few hundred feet with the up and down drafts—it would put less stress on the aircraft. He was right; it would have been impossible to hold it level, anyway. He said I had done well with the rough flying, and the little plane had made it through much better than expected. Once we had made it to the other side of the storm over northern Alabama, the sun started to shine and the sky had begun to clear up nicely.

We got to a part of the state I knew very well. As we approached my grandparent's house on the Tennessee River, my brother said one of our friends was staying there and probably was fishing.

I was anxious to get away from all the military preparations I'd been dealing with in flight school

We cancelled IFR and continued on. I checked the fuel gauges; we had 10 gallons per side—plenty of fuel to finish the short 15-minute flight to our home airport south of Nashville. We planned to have a little fun, in true civilian style, and take her down low to see if we could buzz our buddy on the river. It had been a while since I'd done this type of flying, but such idiocy doesn't take much practice. My Marine friend in the back was wide-eyed and nervous (from the tone of his voice). This "flat hatting" is not allowed in flight school, and I was deter-

mined to show him a different side of flying.

We were down to 50 feet and having a good time. The fishermen were waving as we flew past at 120 knots. We were about to turn up and out of the basin when my brother's friend said, "You guys do know that since they replaced these fuel tanks, they indicate five gallons when empty..." He had been a certified flight instructor in this aircraft, and our silence answered his question. No, obviously, we did not know that fact.

The fun was over, and I slowed and banked up to a safer altitude. The next 15 minutes



Photo-composite.

were some of the quietest I've ever heard in an aircraft. All four sets of commercially-rated eyes stared at the fuel gauges from the front and back seats.

We were five minutes from our home field and about to cross parallel with the last airport before our intended field. We discussed whether we should stop and get more gas or continue on. Our question was answered for us when the

It still amazes me that four experienced pilots almost killed themselves in a small Piper.

engine made a slight chug. My brother took the plane to a hard right, onto the off-duty runway of the small country airport. It was closed for the day, so we had to call the airport manager by cell phone. We bought enough gas for the five-minute flight to our home airfield.

I have thought about this flight many times in the past few years. It still amazes me that four experienced pilots almost killed themselves in a small Piper. I could imagine the headlines now: "Four commercial-rated pilots killed in a plane barely large enough to hold them and their egos."

Three of us were very familiar with this aircraft. We had more than 4,000 hours of experience among us and more FAA licenses than I would care to count. We simply had gotten too big for our britches. Because of our experience levels, we felt this small aircraft simply couldn't hurt us—wrong! Nearly dead wrong!

Don't forget the importance of fundamental safety procedures; anything can happen to you, no matter how experienced your crew. 

Lt. Perry currently flies with HSL-48.

Wow! That's what came to mind after reading this article. We actually have naval aviators who would disregard most everything they've learned in flight school when slipped from the steely bonds of 3710 into the "real world" of light-civilian general aviation. I get this mental image of the scene from the "Oh Brother Where Art Thou" flick where they make a break from the chain gang, only to embark on an odyssey of errors.

Well, this one had all the ingredients for a classic comedy of errors, but this was real life. How about just a little ORM, gents, for goodness' sakes! I know it doesn't go as deep or burn as long, but a Piper still can produce a smoking hole!

Too often I read accounts of Sailors and Marines who kill or maim themselves in every off-duty endeavor from boating to mowing the lawn, to driving home for a long weekend. Evidently our hero survived to get back to the "bonds" of naval aviation and even was man enough to share his account. Good on you, sir, for even George Clooney will play the fool if there's enough fun to be had and the price is right.

Listed below are just a few violations of FAR 91 that come to mind after reading this tale.

Sec. 91.103 Preflight action

Each pilot in command shall, before beginning a flight, become familiar with all available information concerning that flight. This information must include:

(2) For civil aircraft...other reliable information appropriate to the aircraft, relating to aircraft performance under expected values of airport elevation and runway slope, aircraft gross weight, and wind and temperature.

Sec. 91.13 Careless or reckless operation

(a) Aircraft operations for the purpose of air navigation. No person may operate an aircraft in a careless or reckless manner so as to endanger the life or property of another.

Sec. 91.119 Minimum safe altitudes: General

(c) Over other than congested areas. An altitude of 500 feet above the surface, except over open water or sparsely populated areas. In those cases, the aircraft may not be operated closer than 500 feet to any person, vessel, vehicle, or structures.

91.151 Fuel requirements for flight in VFR conditions

(a) No person may begin a flight in an airplane under VFR conditions unless (considering wind and forecast weather conditions) there is enough fuel to fly to the first point of intended landing and, assuming normal cruising speed:

(1) During the day, to fly after that for at least 30 minutes.

—Cdr. Chris Spain, analyst, Aircraft Operations Division, Naval Safety Center.

HANGING ON BY SOME BOLTS

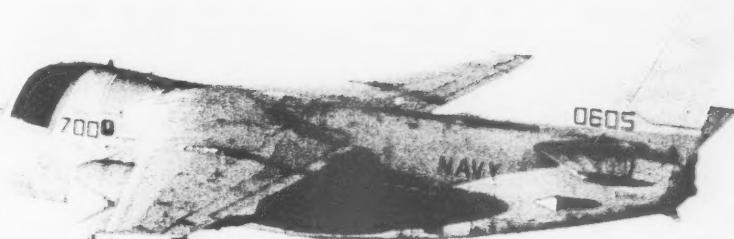
By LCdr. Steve Blasch

It was a calm and clear night in the North Arabian Sea, and we had been on station a month, supporting Operation Southern Watch. After a few days of bad weather, including a sandstorm at sea, the absence of haze and clear visibility was a welcome sight. We anticipated a smooth night of SSC and recovery tanking—we thought.

My trusty pilot and I briefed and completed our pre-flight routine before walking. We went up to the flight deck and awaited our Hoover to do the old hot switch. After the normal pleasantries of greeting the offgoing crew, we got the passdown on the aircraft status—it was an up aircraft. We settled in, completed our checks, and taxied to the catapult—tension, run-up, wipeout and lights on.

Off we went into the night, climbing to our tanker altitude. The airspace was busy, as another one of our brethren already was checking their refueling store. We started a slow rendezvous.

Just as we were about to join up, we heard a "thud," followed by a moderate rumbling sound, which lasted until the end of the flight. After a "Holy #*^@!" from each of us, we immediately assessed flight controllability, which was



good. We then checked the engine instruments and flight controls; they were normal.

We tried to figure out why the aircraft was making abnormal noises, with normal cockpit indications. We figured something had flown off the aircraft, or one of the engines was vibrating. We reduced the left engine throttle—step one of our engine-vibrations-emergency procedure. No change, the jet still was rumbling at a level of about half the noise of open bomb-bay doors. OK, on to test the No. 2 engine—same result. The engines were normal, so what next?

Tell them what they have won, Bob: "a No. 1 engine-fire light, Johnny!"

As the fire light came on, the wafer-thin cushions of our Escapac 01 ejection seat were sucked up. We waited "one potato" in the cockpit to make sure we had no fast hands turning switches, and we started to execute our engine-fire emergency procedures.

With Jackie Chan-like reflexes, I guarded the No.2 throttle. "No. 2 throttle guarded," I chimed in to the pilot.

He responded, "No. 1 throttle coming off."

During this exchange, I started the auxilliary power unit (APU).

We took a breather and reaffirmed we still were flying. We were 1,000 feet below the tanker-checkout altitude, and we agreed to descend another 1,000 feet for separation. We also agreed to complete our checklists before we called the outside world and started a communication circus. Because the launch just had started, we knew we had plenty of time until the recovery began. From this point on, the flight seemed like an emergency-procedures trainer at the FRS. We completed all the checklists, down to lowering the gear and flaps.

We were ready to communicate with the outside world, so we called our representative in CATC. We passed our situation: "Single engine with No. 2 running, both hydraulic systems operational, checklists complete, will need a tow out of the wires and a manual wing fold."

Before we recovered on board, we discussed all the possible contingencies and flight characteristics associated with a single-engine arrestment.

Ready to come in for our trap, we set up at a "gentleman's" distance of 10 miles and followed the tractor beam in to the boat—roger ball. My pilot made his first single-engine landing at the boat (he told me afterward). We found out we had not discussed one thing: We would track left in the landing area because of asymmetric thrust.

Now that we were safe on deck, we could unravel the mystery of what went wrong with the aircraft. We exited and joined the crowd around the No. 1 engine. To our surprise, the entire aft section of the engine tailcone had broken off and was hanging in the breeze. It

was held on by just three of the more than 30 bolts that secured it to the aft end of the engine.

The first lesson learned was always keep flying. After we heard the thud, we immediately scanned our flight and engine instruments to make sure we still were flying. We thought about having a wingman join but initially decided to descend and get separation from everyone.

Believe your cockpit indications unless you can prove otherwise. With no indications of a problem from our flight or engine instruments, we were very perplexed. We found ourselves almost hoping for something else to go wrong so we could get a clearer indication of the problem. We got what we hoped for when we saw a fire light, caused by one of the two warning elements in the breaking tailcone. This signal confirmed something was amiss with the No. 1 engine.

If time permits, take care of your emergency before communicating the problem to the outside world. Waiting to communicate probably was the major reason everything went smoothly. We gave ourselves plenty of time to assess the situation and to step through all the emergency procedures. We elected to call our representative with our ducks-in-a-row, which enabled us to give our best assessment, and it kept us ahead of the jet.

Take seriously your emergency-procedure training. As a senior Hoover guy, I had gotten no slack from the simulator instructors when I completed my refresher syllabus before this tour. A challenging training program is what every aviator should strive for, and I'm here to tell you it certainly paid off. After the initial assessment of our problem, the training took over, and our actions seemed natural. Next time you go through your EP trainer, have the instructor shake it up a bit, no matter how senior you are. Thanks to a solid pilot and dedicated training instructors, this story had a happy ending. 

LCdr. Blasch and Lt. Alain Garcia (also on this flight) fly with VS-21.

WORK ZONE

REDUCING MISHAPS BY 50%

Drunk Driving

The Problem

- Impaired driving will affect one in three Americans nationwide during their lifetimes.
- Alcohol-related motor-vehicle crashes nationwide kill someone every 30 minutes and injure someone every two minutes.
- Navy statistics for the last five years show Sailors are dying in alcohol-related motor-vehicle crashes at the rate of one every 17 days, compared to one every 6.1 days in previous years. Using these figures, a Sailor ending a 20-year career today will have seen 1,197 shipmates die in alcohol-related motor-vehicle crashes.
- Marine Corps statistics for the last five years show Marines are dying in alcohol-related motor-vehicle crashes at the rate of one every 29.5 days, compared to one every 13.8 days in previous years. Using these figures, a Marine ending a 20-year career today will have seen 459 fellow Marines die in alcohol-related motor-vehicle crashes.

Groups at Risk

- Nationwide, male drivers in fatal crashes are nearly twice as likely as female drivers to be intoxicated with a BAC of 0.10 percent or greater (exceeding the legal limit in all states).
- The risk of being involved in an alcohol-related motor-vehicle crash is greatest for 21-year-old Sailors and 22-year-old Marines.
- Nationwide, young men ages 18 to 20 (too young to buy alcohol legally) report driving impaired as often as men ages 21 to 34.

Risk Factors

- Drivers nationwide ages 35 and older who have been arrested for impaired driving are 11 to 12 times more likely than those who never have been arrested to die (eventually) in crashes involving alcohol.
- Nearly 75 percent of drivers nationwide convicted of driving while impaired are frequent heavy drinkers or alcoholics.

Navy/Marine Corps Prevention Initiatives

- Discuss the perils of drinking and driving during safety stand-downs and ORM-training sessions.
- Encourage use of a designated driver.
- Publish items in Plans of the Day and ship and station newspapers.
- Initiate a “safe cab” program, so Sailors and Marines can call a cab, rather than drive after they’ve been drinking.
- Stage shipmates’ wrecked cars in view of all hands.
- Consider “intrusive leadership” as a way to stay connected with junior personnel and to enhance their survivability and welfare, particularly on weekends and holidays.

Resources

- Naval Safety Center (www.safetycenter.navy.mil/ashore/motorvehicle/default.htm)
- National Highway Traffic Safety Administration (www.nhtsa.dot.gov/people/)
- AAA Foundation for Traffic Safety (www.aaafoundation.org/home/)
- National Safety Council (www.nsc.org/Issues/drivsafe.htm)
- National Center for Injury Prevention and Control (www.cdc.gov/ncipc/duip/duip.htm#mv)

WORK ZONE

REDUCING MISHAPS BY 50%

The Worst Times for Car Wrecks

(Based on 376 Navy traffic deaths and 302 Marine traffic deaths, FY98-03)

Day of week: Saturday (26%)

Time of Day: Sailors 0200-0259 (40 deaths)

Marines 0530-0629 (27 deaths)

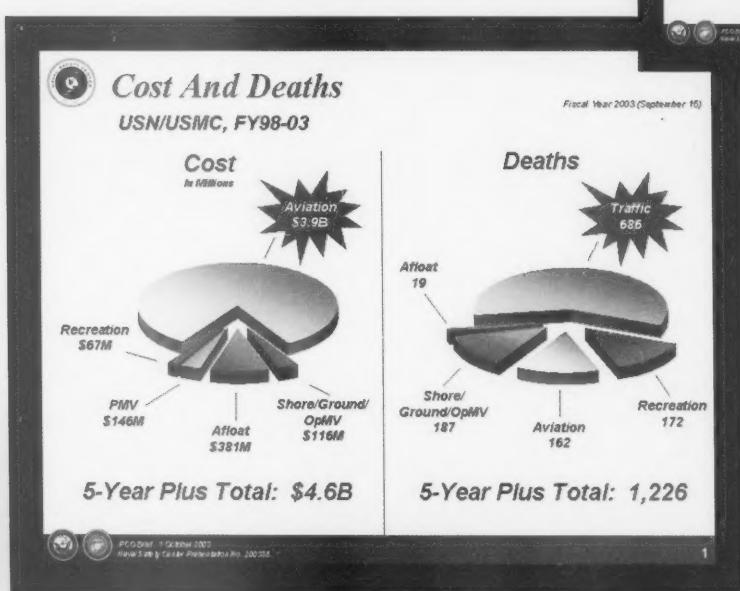
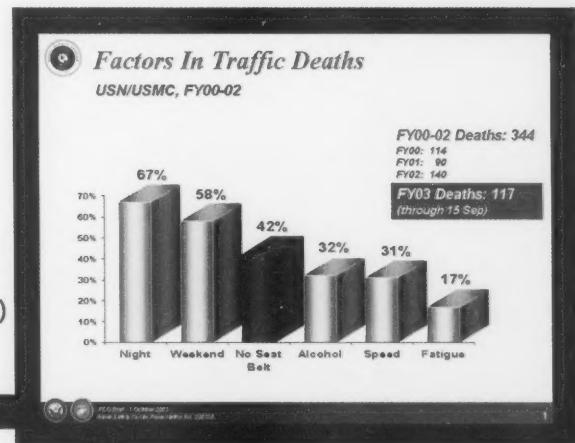
Month: Sailors - July (44 deaths), August (43 deaths)

Marines - April (35 deaths), July (34 deaths)

Date: Sailors - July 14 (5 deaths), Dec. 23 (5 deaths)

Marines - Dec. 23 (5 deaths)

One-hour period: Saturday, 0030-0129 (12 deaths each)



What You Can Do—These Things Work!

- Leave chit statement of travel plans
- Command transport for social functions
- Pre-trip checklist/brief/counseling
- Calling card for emergencies
- CO's traffic-safety policy
- Traffic safety quiz
- Safety stand-downs/seminars
- Pre-holiday briefs
- Newcomer orientation/indoctrination
- Crash-prevention awards program

